FERROPORTIN1 NUCLEIC ACIDS AND PROTEINS

ABSTRACT OF THE DISCLOSURE

Positional cloning has been carried out to identify the gene responsible for the hypochromic anemia of the zebrafish mutant *weissherbst*. The gene, *ferroportin1*, encodes a novel multiple-transmembrane domain protein, expressed in the yolk sac. Zebrafish *ferroportin1* is required for the transport of iron from maternally-derived yolk stores to the circulation, and functions as an iron exporter when expressed in *Xenopus* oocytes. Human and mouse homologs of the *ferroportin1* gene have been identified. The invention includes isolated polynucleotides, vectors and host cells comprising nucleotide sequences encoding Ferroportin1 proteins and variants thereof, including those having iron transport function. The invention also includes polypeptides encoded by *ferroportin1* genes and variants of such polypeptides, and fusion polypeptides comprising a Ferroportin1 or a portion thereof. Methods to produce a Ferroportin1, methods to produce antibodies to a Ferroportin1 and methods to identify agents binding to a Ferroportin1, which can be inhibitors or enhancers of Ferroportin1 iron transport activity, are also described. Inhibitors of Ferroportin1 activity can be used in a therapy for hemochromatosis.